

Original Article

**Comparative analysis of new sport types – potential candidates
for inclusion in the winter olympic games**

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Abstract:

The aim of this analysis is to compare and to assess modern sport types and to define one of them as the most suitable for inclusion in the program of the Olympic Winter Games (OWG). *Material:* as the object of study most suitable sport types were chosen in accordance with the existing criteria for the assessment of the International Olympic Committee. Five of these sports are the disciplines that are practiced in winter and are eligible for inclusion in the OWG. *Methods:* on the first stage by selection method we defined the list of suitable sport types for inclusion in the OWG. On the second stage by comparison method we evaluated their potential, using the existing IOC criteria. *Results:* the list of sports was reduced (for the present day), which formally have the right to be considered for inclusion in the program of the OWG; it is estimated that in accordance with paragraph 29 of the Olympic Charter, national sports federations of sports - candidates for the OWG must be included in the National Olympic Committees of the countries and international bodies, and also must be the members of the Association of Recognized IOC International Sports Federations (ARISF). Thirty five sport types, governed by corresponding international sports federations and included in the ARISF, were analyzed. It is stated that five of these sports are disciplines that are practiced and may have a chance of being included in the OWG. We came to conclusion that in terms of international recognition the best position is awarded to ski orienteering since that sport type is already part of several significant multisport events that cannot be applied to other sport types under consideration. *Conclusions:* as a result of ranking ski orienteering has the highest potential as the most popular sport having the best coverage in the media and the most convenient for carrying out competitions on existing winter biathlon stadiums or tracks.

Key words: Winter Olympic Games, international sports federations, the program of the Olympic Games, enthusiasm for sport.

Introduction

XXI century modern Olympic sport is a universal mechanism for self-realization, self-development and human expression and, no doubt, the most important means of formation of a harmoniously developed personality. [4]

Coubertin considered the Olympic movement as an organic part of his era. He sought to bring the Olympic idea, its essence and principles to other areas, not connected directly with the field of sports. "Olympism – as Coubertin wrote in 1912 - brings together, in a single beam of sunlight, all the principles that contribute to the person's improvement [3].

The history of the Olympic movement is now almost 120 years long. In 1896, the first Olympic Games took place in Athens, Greece 1896. Olympic Winter Games (OWG) started in 1924. According to the Olympic Charter after each specific Olympic Games the International Olympic Committee (IOC) reviews the Program. The Program of the Olympic Games is the program of all sports competitions established by the IOC. Each sport is connected to an International Sport Federation. Only sports which comply with the Olympic Charter and the World Anti-Doping Code are eligible to be in the program (IOC).

Each sport can have one or more disciplines and each discipline can have one or more events. An event is a competition leading to a medal ceremony (IOC). The IOC Session has adjusted the standards for inclusion and exclusion of sports, disciplines and events several times. The recent principles were approved at the 127th IOC Session in Monaco as a part of the reformation of the IOC called Olympic Agenda 2020. This has provided

more flexibility concerning the inclusion of new sports. The Olympic Agenda 2020 moves the Olympic program from a sport based program to an event based program and presents limitations in the growth of the Games and opens two ways new sports and events can be added to the program. The Winter Olympic Games are now restricted by approximately 2,900 athletes, 2,000 accredited coaches and athletes' support personnel and 100 events. New sports can be included upon proposal from the IOC Executive Board at the IOC Session seven years in advance of the Games, when the Host City is elected. Upon proposal from the IOC Executive Board following an agreement between the relevant Organizing Committee, the relevant IF and the IOC, the Sports Program may be amended by decision of the Session not later than three years prior to the opening of the relevant Olympic Games (IOC). This gives the Host City influence to propose new sports for inclusion to the Olympic Program. This possibility is especially interesting in the point of view of development the OWG.

From 1924 to 2014 in total 21 Olympic Winter Games have been organized. During the first OWG, held in Chamonix in France in 1924, 15 medal events in four sports with eight disciplines were organized.

The OWG program has expanded to 98 medal events in seven sport types with 15 disciplines in Sochi 2014. It shows that the OWG program has expanded with many new medal events but big changes had started since 1924 [13, 14]. This had created new disciplines and events in each discipline. Further expansion in the number of events within the existing sports may impede competitions spending [2]. With 98 events in the program in Sochi Olympics 2014 that was close to the maximum number of medal events for the OWG defined by the Olympic Agenda 2020.

Taking into the account the potential to enlarge the OWG program, the goal of our paper is to evaluate which sport has the highest potential for future inclusion. Our evaluation will be based on comparing all eligible sports according to existing IOC evaluation criteria. Such attempt of article's authors [9] is relatively unique in the sports literature because there are few articles in sports literature devoted to consideration of this problem in the development of winter sport types, [10, 11, 12].

Hypothesis: we assumed, that a comparative analysis will allow giving a fair assessment of their possibilities of becoming part of OWG program.

The aim of this analysis is to compare and to assess modern sport types and to define one of them as the most suitable for inclusion in the program of the Olympic Winter Games(OWG)

Materials and Methods

Research organization

On the first step we determined the list of eligible sports for inclusion. On the second step we compared their potential using existing IOC criteria.

Participants

The list of sport types (for the present day) which formally have the right to be considered for inclusion in the OWG program can be determined very easily. According to the Paragraph 29 of the Olympic Charter, national sports federations of candidate sports must be included in the National Olympic Committees of their countries and their international bodies are also expected to be members of the Association of IOC Recognized International Sports Federations (ARISF).

Statistical analysis

Today, the ARISF includes 35 sports managed by relevant international sports federations. Five of these sports have a discipline that are practiced in winter and could be considered eligible for inclusion in the OWG. These are presented in Table 1.

Table 1 ARISF International Federations practicing for "winter" sports (for the 1st July 2015)

Sport, federation (discipline)	Established	Federation members	First demonstration at cultural program of WOG
Federation of International Bandy Bandy	1955	25	1952, 14 – 25 February Norway, Oslo
Motorcycling	1904	112	–
International Motorcycling Federation Track Racing branch - Ice Racing			–
Mountaineering & Climbing	1932	85	2014, 7 – 23 February Russia, Sochi
International Alpinism Associations Union Ice Climbing			
International Orienteering Federation	1961	80	1998, 7 – 22 February Japan, Nagano
Ski Orienteering			
International Ski Mountaineering Federation Ski Mountaineering	2008	30	–

Results

In this part we introduce the five eligible sports for inclusion in the OWG – Bandy, Ice Racing, Ice Climbing, Ski Orienteering and Ski Mountaineering – with focus on memberships, main events and popularity (as the base for next comparative part) All information is compiled from web pages of the respective sport federations and of the IOC.

Bandy

The Federation of International Bandy (FIB - <http://www.worldbandy.com>) was founded on February 12th, 1955 by the Finnish, Norwegian, Russian and Swedish Bandy Federations. Already at the OWG in Oslo 1952 Bandy was a demonstration sport.

FIB has 29 member federations from Europe, North America and Asia. FIB organizes annual World Championships for men and World Championships for women and youth every two years. For a long time only five countries competed in the Bandy World Championships. The record number of participating countries in the Men's Bandy World Championships is 17 and in the Women's Bandy World Championships it is six countries.

The last three years (2013-2015) the Men's World Championships have had the same results for the top 5 with Gold to Russia, Silver to Sweden, Bronze to Kazakhstan, fourth place to Finland and fifth place to Norway, and in the whole history of Bandy only these five countries (combining Russia and Soviet Union) has taken medals in both the Men's and Women's Bandy World Championships.

The sport concept is rather simple and very similar to ice-hockey – but the ball is used. Two teams play on the artificial ice; normally the playing time is 2 x 45 minutes. The field of play shall be rectangular. The length shall not be less than 90 m or more than 110 m. The width shall not be less than 45 m or more than 65 m. The ball shall be made of approved material in an easily visible color. When dropped on firm ice from a height of 1.5 m, the bounce shall be regular, 15 cm at least and not more than 30 cm. The diameter shall be 63 mm +/- 2 mm everywhere, and its weight shall be at least 60 g and not more than 65 g when unused. The stick shall be of wood or similar approved material. The width shall not in any place exceed, including tape, 7.0 cm. The length, measured along the outer side of the stick, must not exceed 125 cm. Corners and edges of the stick must be rounded and no metal fittings are permitted. All players and referees on the ice must wear skates.

Concerning the visibility and popularity FIB offer Web TV from their World Cup and the Bandy World Championships is broadcasted on TV channels in Sweden, Finland and Russia.

Ice Racing

As indicated above, the Ice Racing is the winter discipline of the 'Fédération Internationale de Motocyclisme' (FIM - <http://www.fim-live.com>). FIM was founded on 21 December 1904, in the rooms of the restaurant Ledoyen in Paris, under the name of 'Fédération Internationale des Clubs Motocyclistes'.

The Track Racing Commission (CCP) is responsible for Track Racing, Speedway, Long Track, Grass and Ice Racing. The potentially eligible discipline is 'MOTUL ICE SPEEDWAY GLADIATORS' (individual and team races). The sport had six events in 2015 in following states – Sweden, Russia, Kazakhstan, Netherlands and Germany. The sport individual ranking includes 31 athletes from eight countries (seven from Europe and one from Asia). Because of this limited participation we decided not to continue with this sport and we exclude it from our final evaluation.

Ice Climbing

Ice Climbing is organized under the International Climbing and Mountaineering Federation (UIAA - <http://www.theuiaa.org>). The history of UIAA began in Chamonix, France in August 1932 when 20 mountaineering associations met for an alpine congress. They decided to found an international federation which would be in charge of the 'study and solution of all problems regarding mountaineering'. In 2006 the UIAA General Assembly recognized that it was no longer possible to keep all the sections of the UIAA together as a single federation. Therefore the independent International Federation of Sport Climbing came into being. Ice Climbing as the core organizations' competition sport remains a part of the UIAA – under the responsibility of the UIAA International Commission For Ice Climbing Competitions – ICICC. In 2007 the UIAA celebrated its 75th anniversary, and in 2009 the federation counted almost 1.3 million members worldwide.

Ice Climbing has the following main events - UIAA Ice Climbing World Tour, UIAA World Championships, UIAA World Youth Ice Climbing Championships. The Word Championships is organized every two years. In 2015, that opportunity presents itself in the spectacular outdoor setting of Rabenstein, Italy for the Lead (Difficulty) and Speed in Kirov, Russia. The results list included 18 athletes for speed from seven countries in men's category and 16 athletes also from seven countries in women's category (Russia clearly dominates). The third UIAA World Youth Ice Climbing Championships took place in Saas Fee, Switzerland 17-18 January 2015.

Concerning the sport concept, Ice Climbing structure has different requirements for three existing disciplines, Lead, Bouldering and Speed. For Lead competitions, compulsory elements are minimum height of structure = 12m, Minimum route length = 15m and the structure must be capable of having at least two routes running simultaneously. The profile of the structure must not be a simple 2-D structure, some element of 3-Dimensionality must be incorporated. For Bouldering competitions, compulsory elements are that there must be enough discrete sections of the bouldering structure to allow six problems to be climbed simultaneously, each problem must have a significant degree of 'isolation' from the other problems. For Speed competitions,

compulsory elements are the height of the route = 12-25m, structure should be close to vertical, structure should be designed to accommodate two routes of equal length/lead/style, each route should be protected by two belay points, arranged in such a manner that the rope does not interfere with the competitors, routes and belay points should be arranged so that competitors fall away from each other.

The most important issue concerning the visibility of this sport is the fact that Ice Climbing was featured at Olympic Park during the 2014 Winter Olympics in Sochi as the part of the Ice Climbing Festival with disciplines 'Speed wall' and 'Lead structure', which saw thousands of visitors witness ice climbing and dry tooling for the first time. The format was a dual lead route with two athletes climbing similar routes at the same time. The same was the case for the Speed wall. Two people competing against each, the first one to reach the top wins.

Ski Orienteering

Ski Orienteering is one of the disciplines managed by the International Orienteering Federation (IOF – <http://www.orienteering.org>) that was created in 1961. At that the time of the IOF's foundation, the sport consisted of only 10 European countries. Now it has 80 national federations, representing all continents. The IOF has four disciplines; one of them is the winter discipline Ski Orienteering.

Orienteering as a sport was established in the late 19th century and early 20th century in Scandinavia. From the earliest days of the sport, it has also been practiced on skis. Ski orienteering is not a new discipline. Ski Orienteering holds World Championships every two years and the largest represented events was in Austria in 1998 and in Sweden in 2011, attended by sports delegations from 28 and 30 countries respectively. Most of the countries are European, but four continents normally represent in the World Ski Orienteering Championships. Junior and Masters World Championships, World cup and Regional senior and youth Championships are also organized.

From the point of the sport concept Ski Orienteering is a unique winter sport where the competitors find their way on skies on prepared ski tracks or by shortcutting in the loose snow. In the terrain permanent ski tracks connected with narrow snow mobile tracks create the track network. The organizers provide the athlete with a map of the track network and the checkpoints to visit in a set order from the start to finish. The athletes decide their own route between checkpoints and navigate to find them. The fastest athlete to complete the course wins. Ski Orienteering has following events - sprint, medium, long, relays and sprint relays (mixed gender).

Most of the international Ski Orienteering competitions in the new millennium have been organized from existing ski stadiums for cross country skiing and biathlon. Using the permanent ski tracks at these venues makes a great fundament for the sport and possibilities for a great arena show in a sport where a clear lead can be lost in seconds and the results are not decided before the winner cross the finish line. This also makes the sport very cost effective to organize, especially at an OWG where the sport easily can be held from either the cross country skiing or biathlon arena.

Concerning the visibility the Ski Orienteering was presented as a demonstration sport at the Olympic Winter Games in 1998 in Nagano (Japan). The sport is part of the FISU World University Championships, was included into Asian Winter Games, will be included into the 2019 Winter Universiade and is a part of CISM Military World Championships and Winter Games. Modern technologies as portable cameras and GPS tracking have made it possible to show the essence of the sport to its spectators at the arena and as an excellent product for TV broadcasts. These technologies have also opened possibilities for spectators to follow the athletes' movement and do their own analysis during the event. The IOF has its own web portal for broadcasting its event, IOF LiveCenter. Here it is possible to follow all major Ski Orienteering events. For the Championships TV coverage is presented live or as highlights in the most established countries.

Ski Mountaineering

Ski Mountaineering belongs to the International Ski Mountaineering Federation (ISFM - <http://www.ismf-ski.org>), which is a young federation, established only in 2008, but relatively very active.

ISFM organizes every year World Cup and World Championships. Every second year it is also held European Championships. The 2015 World Championships included following disciplines – Sprint Race, Vertical Race-Senior, Vertical Race-Youth, Individual Race-Senior, Individual Race-Youth, Team Race, Relay Race-Men, Relay Race-Women and Relay Race-Youth. Total 107 men and 62 women got right to participate in four age categories – cadet, junior, elite and senior. The number of licensed athletes was 232 in the 2014 season.

Concerning the sport concept, more disciplines are realized. Sprint includes different types of exercise, on skies (ascend and descend parts) and walking part with skies attached to rucksack. Vertical race is single ascent on skis, individual and team race (about 1,5 to 2 hours in individual race) combine minimum three ascents and descends on skies, parts on foot and walking parts with skies on rucksack. Relay is with short legs; with minimum two ascents and descends. The athlete must bring all obligatory and supplementary equipment to the event. During the race briefing, the LOC displays the list of required equipment for the race according to the local conditions.

Ski Mountaineering is relatively young sport, but its popularity step by step increases – and the sport has Olympic ambitions. Some of disciplines – especially sprint and relay can be organized in simple way and close to spectators. ISFM produces video streams form all its major events, downloadable from its web page.

Discussion

Pierre de Coubertin was a reformer of education and education systems. As a supporter of democratization and internationalization of the sport, he did not prevent the inclusion of winter sports in the program of the Olympic Games (1908 and 1924). He supported the proposal of awarding 1st Olympic Winter Games the status of "Week of Winter Sports" which was held in 1924 in Chamonix. To increase the popularity and development of winter sport types, organizational side of sports activities has been improved: standard rules of competitions were made, spontaneity of their carriage was excluded and new measurement technologies were applied. The territory of winter sports is expanding [4].

The authors of the article compared four of five eligible sports - Bandy, Ice Climbing, Ski Orienteering and Ski Mountaineering (Ice Racing is excluded because of too limited popularity – see above). The base for the comparison is criteria used by Tokyo to select additional sports for their OG program - we selected non-subjective criteria to avoid any bias – **institutional matters**, **popularity** and **business model**. Again we use the information available from web pages of relevant ISFs.

Concerning the **institutional matters**, all four ISFs have necessary formal structures and anti-doping program – we may argue that all four federations are formally eligible.

Several differences are visible if **popularity** is evaluated. First, none of evaluated sports has regular TV coverage its main events. The main form of promoting the events is via internet. However, from media perspective Ski Orienteering seems to be leader with highly sophisticated online information and TV supply and some TV coverage (for example an excellent TV production at the European Championships in Russia 2014).

Three of the evaluated sports have been presented as demonstration sports at OWG – Bandy in Oslo 1952, Ski Orienteering in Nagano 1998 and Ice Climbing in Sochi 2014.

From the point of view of World Championship (organization, participation), the smallest number of performers are in Bandy and Ice Climbing, and they also have one country dominating the competitions. Ski Orienteering and Ski Mountaineering both have the problem of dominance of few countries from one continent (Europe) and have relatively similar participation numbers.

From the point of view of international recognition again the best position goes to Ski Orienteering – it is already part of several important multisport events, which is not true for the other sports.

The proposed ranking for popularity is Ski Orienteering, Ski Mountaineering, Ski Climbing and Bandy.

The Olympic Movement is a social movement based on the principles, ideas and ideals of Olympism. It unites organizations and individuals regardless of their social status, political and religious views, race, gender and age, contributing to the development of sport [1].

Concerning the **business model**, it is impossible to obtain reliable information about the financial aspects of main events, so we decided to look on potential costs of organizing the event at OWG. From this point of view the only really expensive sport is Bandy – it needs large extra infrastructure (existing ice hockey stadiums do not have the right size and do not have capacity for extra competitions). The three other sports seem to be very equal; their disciplines can be included into the OWG program without significant extra costs. Ice Climbing needs limited artificial infrastructure and can be organized close to the spectators. Ski Orienteering can be organized in cross country skiing or biathlon stadiums, the extra costs are connected with preparing the map and running snowmobiles outside of permanent ski tracks. Spectators can see a lot of the event, similarly to skiing or biathlon. Ski mountaineering can use existing slopes where downhill competitions are organized, with very small extra costs for specific movable infrastructure but some extra features are necessary. Not all downhill areas are also fully capable of being used– events need both ascents and descend parts, passages, and walking part.

The proposed ranking for the business model is Ski Orienteering, Ski Mountaineering, and Ski Climbing shared first place and Bandy as fourth.

Five existing recognized sports have a formal chance to be included into the OWG program according to the Olympic Charter and the Agenda 2020 in the near future. Ice Racing does not have sufficient representation of nations, only four of them are compared in our article. The methodology follows IOC (formal) rules and because of this, we do not discuss other possible approaches how to rank eligible sports (however, the IOC decision can be very interesting, also the point of view of “real” sport policy).

Evolution of the OWG program (1924 - 1936) allows to state the following: program OWG on the number of types of competitions has not changed significantly [5, 13].

As the prospects for future research, we can provide comparative analysis of other sport types which will be most popular within next 3-5 years in a kind of similar ranking. And therefore this discussion of new sports should be based on new theoretical and experimental results of subsequent studies [10]. At this time, it should be noted that the studies of other authors confirm the validity of the research conducted by the authors of articles and partially coincide with the results obtained by the authors [13, 15, 16].

Modern development of sport marketing technologies (for example, specific marketing strategies of 22nd OWG in Sochi) shows that diversification of communication platforms, social networking, mobile communications and Internet has allowed introducing good-quality content to user. This is the key moment that

allows to be optimistic about the further development of high technologies in the sports marketing [6, 7, 8]. Precisely the successful application of modern technologies in sports will allow to accurately determine the most promising and high potential candidates from all prospective sport for inclusion in the next OWG.

Conclusions

Scientific analysis of the attitude to new sport types that are candidates to OWG program will allow increasing the interest in the process of transition of sports in the official program of the OWG, which in general increases the sports community influence on the development of winter sports in the world.

The premise for contributing to the inclusion of the above-mentioned 5 sports in the OWG program is to expand the spreading of sport, the spread of these sports in new countries and regions, involvement of broad social layers to sport; the increased interest to the history of these sports; rise of popularity in the world of OWG, the development of winter sports and the formation of national and international sports associations of different ages. Overall rating clearly favors Ski Orienteering, especially due to its location in the category of "popular". The sport now has the best coverage in the media, and can be arranged on the already existing winter stadiums, cross-country skiing and biathlon tracks. We can claim that ski orienteering and ski mountaineering are already the possible candidates if they can offer their "short" and "focused on the viewer" disciplines. Both Federations are in the process of preparing it.

Ice climbing current situation is needed to be improved. This can happen very quickly and the ranking can change within a few years.

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